FIG.1

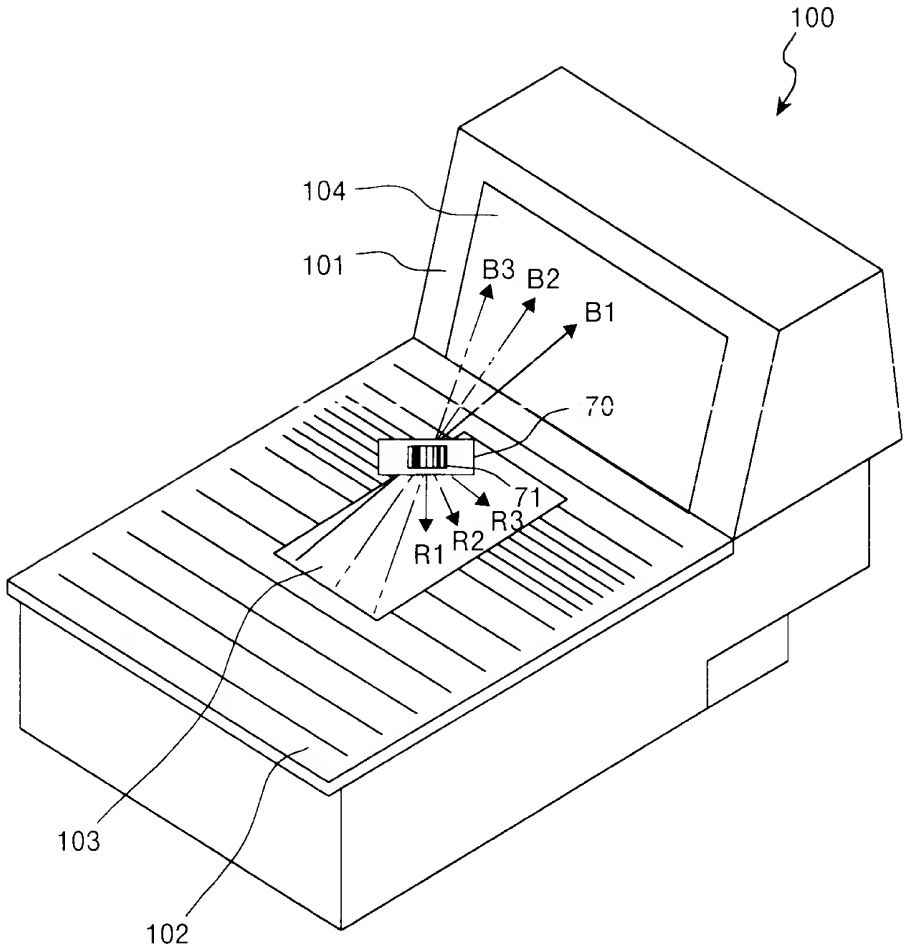

FIG.2

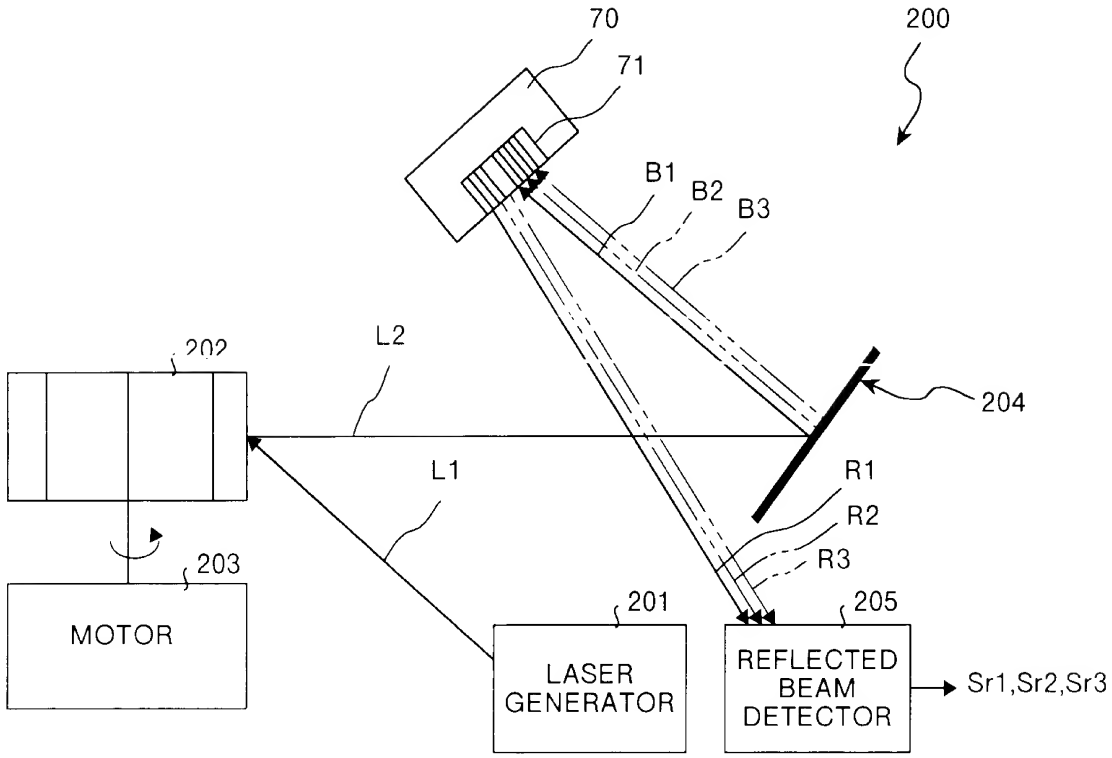
70
71
200
B1
B2
B3
202
L2
204
L1
R1
R2
R3
203
201
205
MOTOR
LASER GENERATOR
REFLECTED BEAM DETECTOR
Sr1,Sr2,Sr3

FIG.3

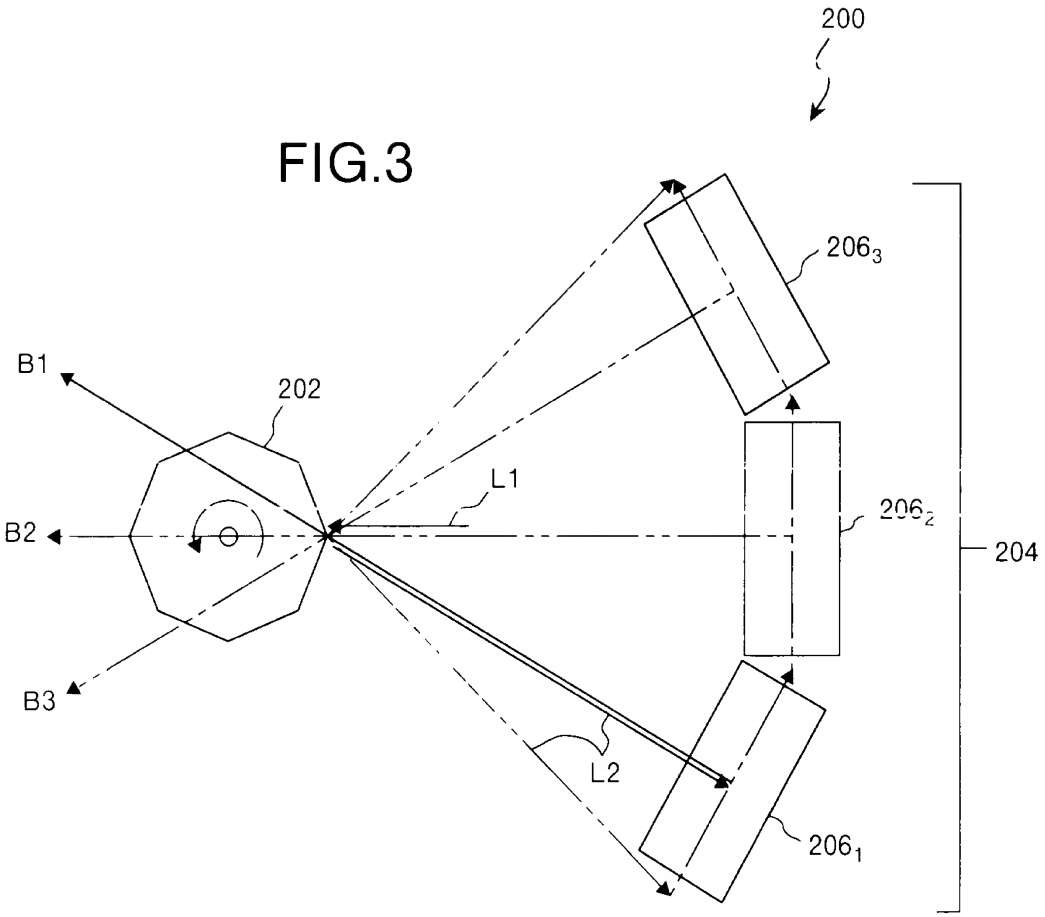

FIG.4

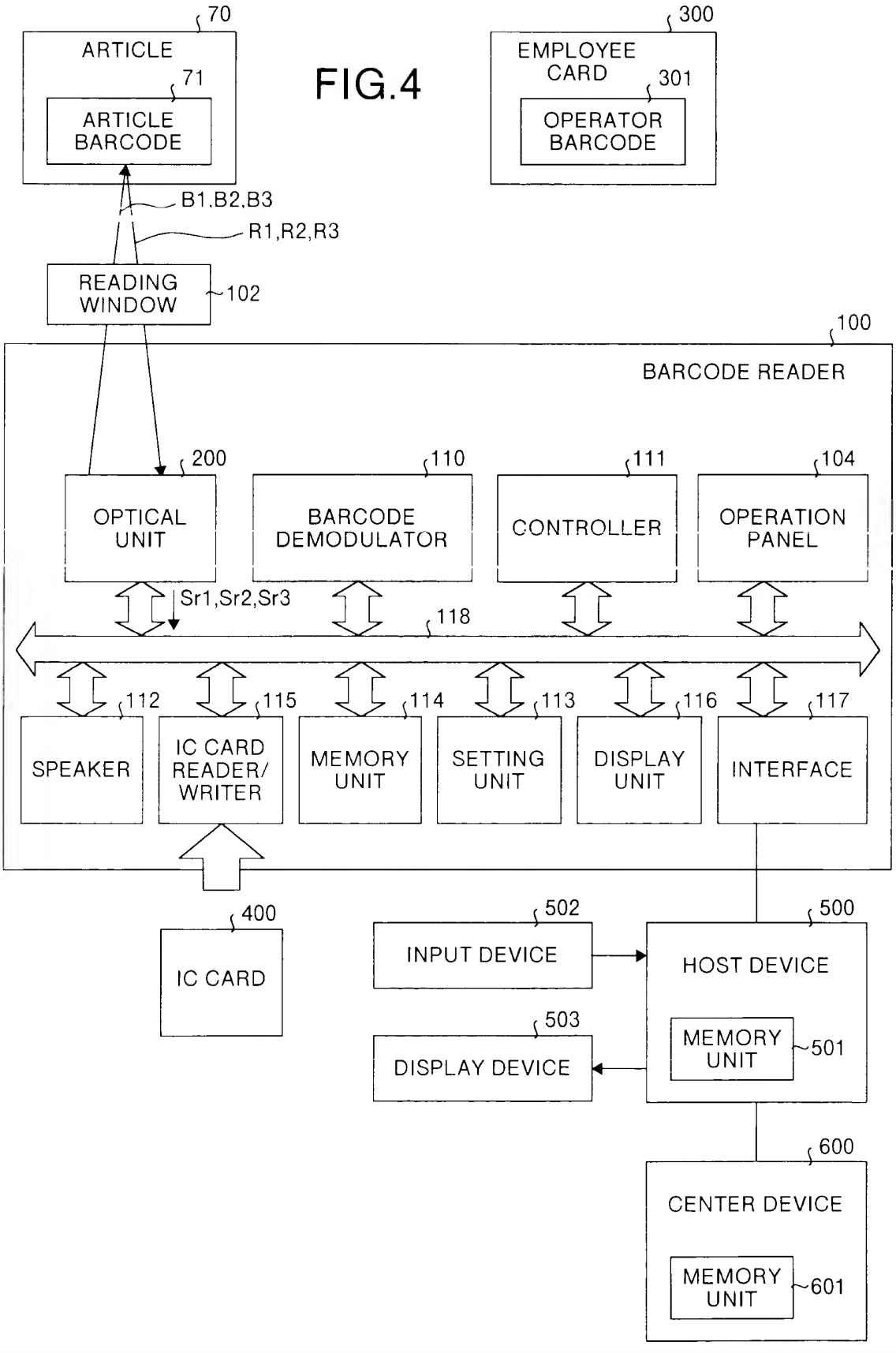
70
ARTICLE
71
ARTICLE BARCODE
300
EMPLOYEE CARD
301
OPERATOR BARCODE
B1,B2,B3
R1,R2,R3
READING WINDOW
102
100
BARCODE READER
200
OPTICAL UNIT
110
BARCODE DEMODULATOR
111
CONTROLLER
104
OPERATION PANEL
Sr1,Sr2,Sr3
118
112
SPEAKER
115
IC CARD READER/ WRITER
114
MEMORY UNIT
113
SETTING UNIT
116
DISPLAY UNIT
117
INTERFACE
400
IC CARD
502
INPUT DEVICE
500
HOST DEVICE
503
DISPLAY DEVICE
MEMORY UNIT
501
600
CENTER DEVICE
MEMORY UNIT
601

FIG.5

700

OPERATION INTERVAL	READING TIME	DOUBLE READ BAN TIME	VOLUME	TONE	
1.5sec	0.75sec	0.75sec	3	C	

FIG.6

800

OPERATOR ID	OPERATOR NAME	OPERATION INTERVAL	READING TIME	DOUBLE READ BAN TIME	VOLUME	TONE
001	TARO YAMADA	1.23sec	0.6sec	0.63sec	5	A
002	SHINICHI SUZUKI	1.00sec	0.45sec	0.55sec	2	D

FIG.7

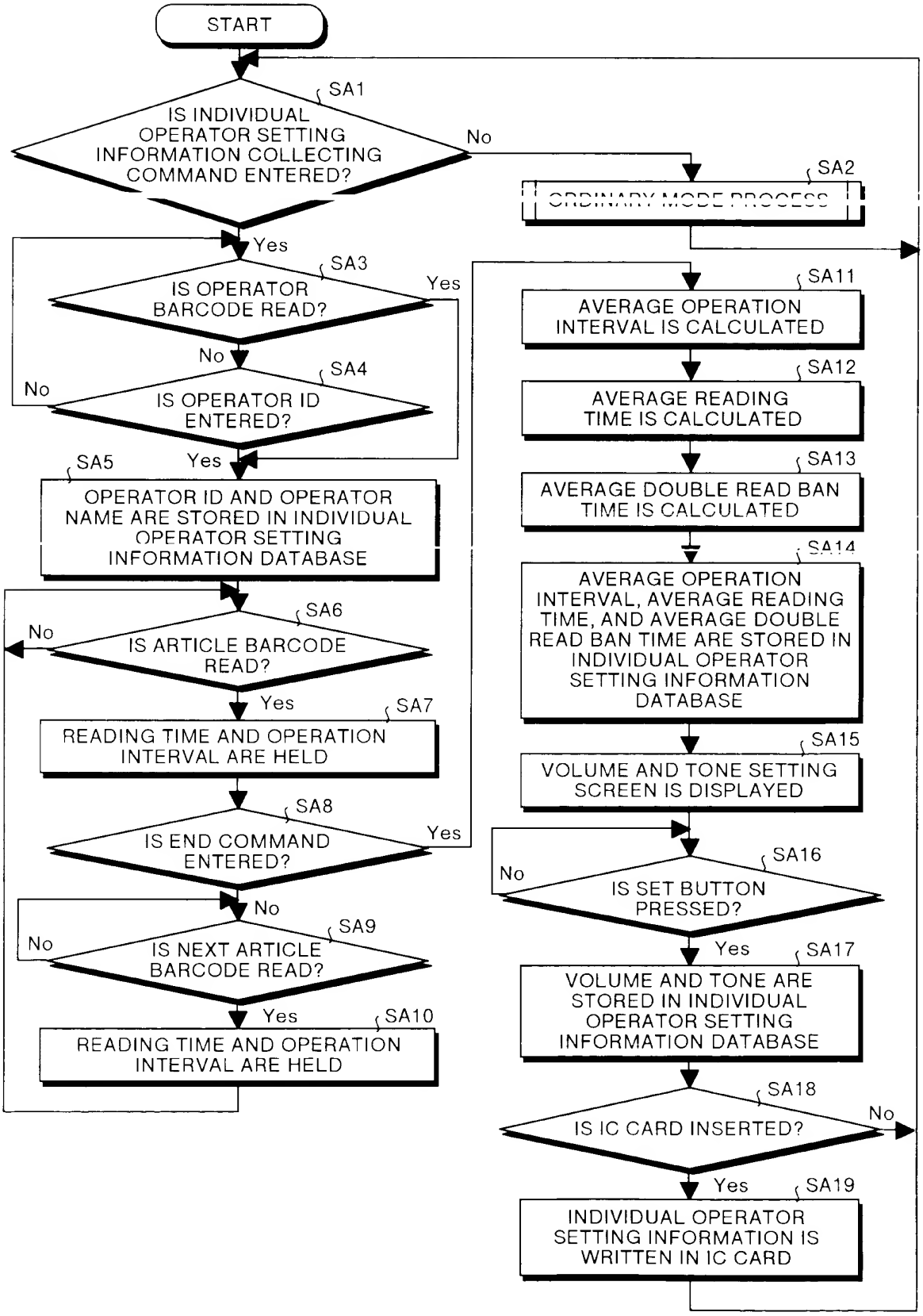
START
SA1
IS INDIVIDUAL OPERATOR SETTING INFORMATION COLLECTING COMMAND ENTERED?
No
SA2
ORDINARY MODE PROCESS
Yes
SA3
IS OPERATOR BARCODE READ?
Yes
No
SA4
IS OPERATOR ID ENTERED?
No
Yes
SA5
OPERATOR ID AND OPERATOR NAME ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SA6
IS ARTICLE BARCODE READ?
No
Yes
SA7
READING TIME AND OPERATION INTERVAL ARE HELD
SA8
IS END COMMAND ENTERED?
Yes
No
SA9
IS NEXT ARTICLE BARCODE READ?
No
Yes
SA10
READING TIME AND OPERATION INTERVAL ARE HELD
SA11
AVERAGE OPERATION INTERVAL IS CALCULATED
SA12
AVERAGE READING TIME IS CALCULATED
SA13
AVERAGE DOUBLE READ BAN TIME IS CALCULATED
SA14
AVERAGE OPERATION INTERVAL, AVERAGE READING TIME, AND AVERAGE DOUBLE READ BAN TIME ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SA15
VOLUME AND TONE SETTING SCREEN IS DISPLAYED
SA16
IS SET BUTTON PRESSED?
No
Yes
SA17
VOLUME AND TONE ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SA18
IS IC CARD INSERTED?
No
Yes
SA19
INDIVIDUAL OPERATOR SETTING INFORMATION IS WRITTEN IN IC CARD

FIG.8

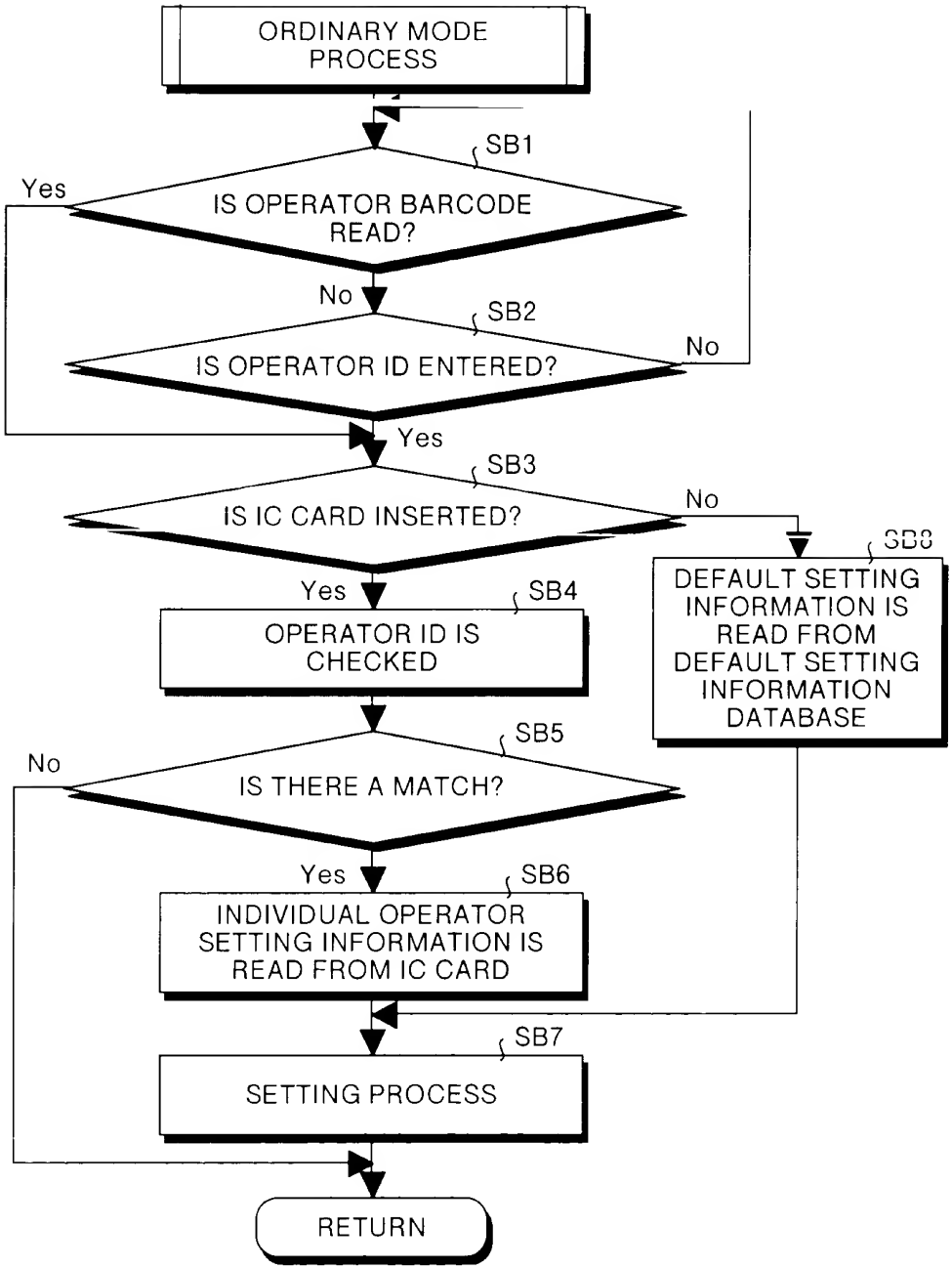
ORDINARY MODE PROCESS
SB1
IS OPERATOR BARCODE READ?
Yes
No
SB2
IS OPERATOR ID ENTERED?
No
Yes
SB3
IS IC CARD INSERTED?
No
Yes
SB4
OPERATOR ID IS CHECKED
SB8
DEFAULT SETTING INFORMATION IS READ FROM DEFAULT SETTING INFORMATION DATABASE
SB5
IS THERE A MATCH?
No
Yes
SB6
INDIVIDUAL OPERATOR SETTING INFORMATION IS READ FROM IC CARD
SB7
SETTING PROCESS
RETURN

FIG 9

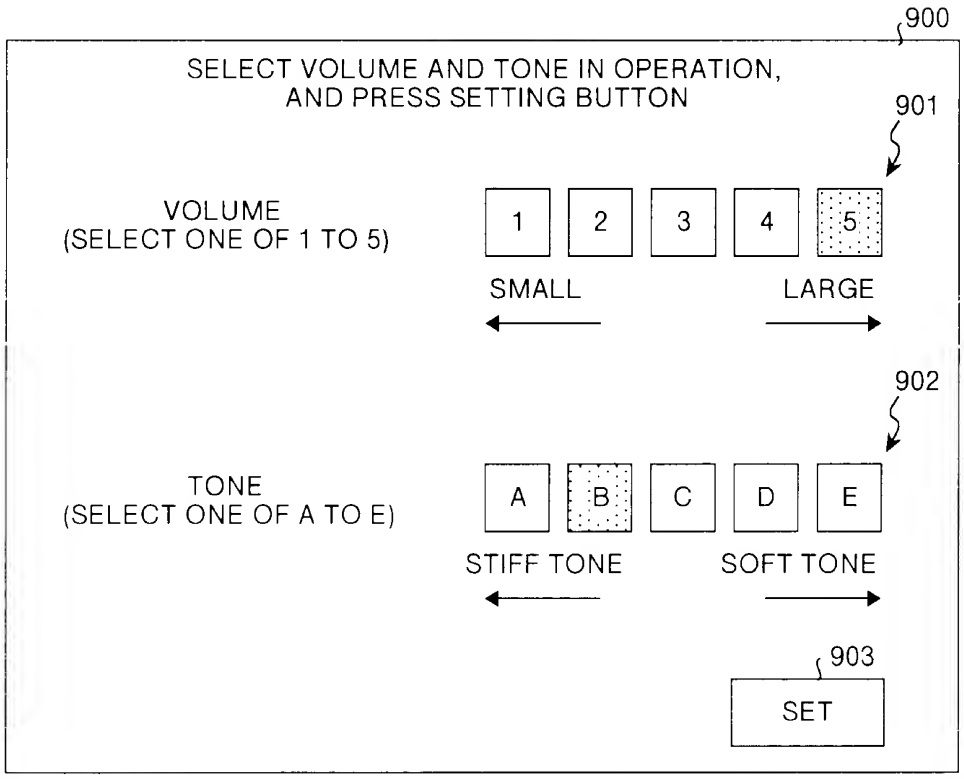
900
SELECT VOLUME AND TONE IN OPERATION,
AND PRESS SETTING BUTTON
901
VOLUME
(SELECT ONE OF 1 TO 5)
1
2
3
4
5
SMALL
LARGE
902
TONE
(SELECT ONE OF A TO E)
A
B
C
D
E
STIFF TONE
SOFT TONE
903
SET

FIG.10

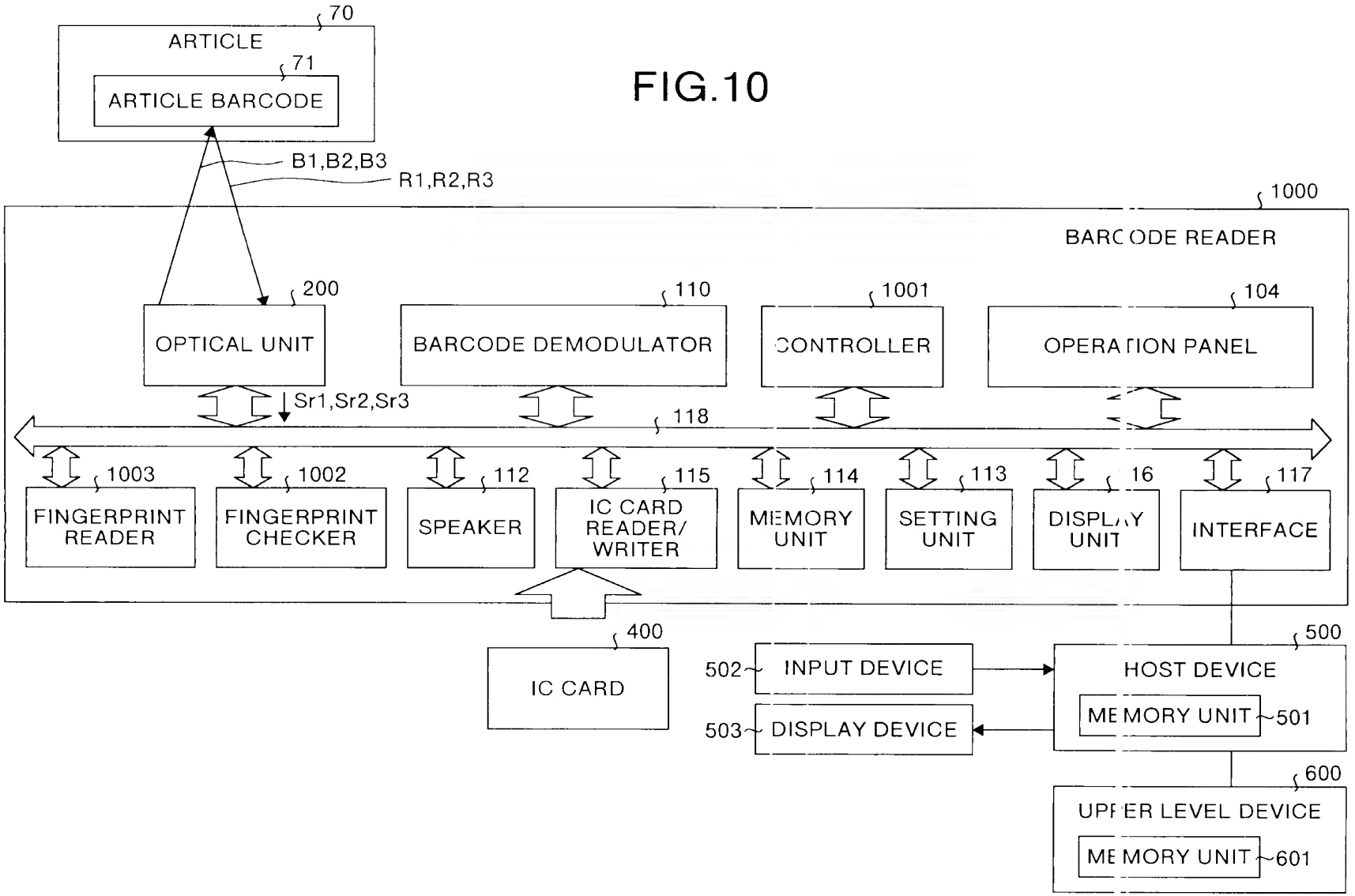
70
ARTICLE
71
ARTICLE BARCODE
B1,B2,B3
R1,R2,R3
1000
BARCODE READER
200
OPTICAL UNIT
110
BARCODE DEMODULATOR
1001
CONTROLLER
104
OPERATION PANEL
Sr1,Sr2,Sr3
118
1003
FINGERPRINT READER
1002
FINGERPRINT CHECKER
112
SPEAKER
115
IC CARD READER/ WRITER
114
MEMORY UNIT
113
SETTING UNIT
16
DISPLAY UNIT
117
INTERFACE
400
IC CARD
502
INPUT DEVICE
503
DISPLAY DEVICE
500
HOST DEVICE
MEMORY UNIT
501
600
UPPER LEVEL DEVICE
MEMORY UNIT
601

FIG.11

1100

OPERATOR ID	OPERATOR NAME	OPERATION INTERVAL	READING TIME	DOUBLE READ BAN TIME	VOLUME	TONE	FINGERPRINT FILE
001	TARO YAMADA	1.23sec	0.6sec	0.63sec	5	A	001.bmp
002	SHINICHI SUZUKI	1.00sec	0.45sec	0.55sec	2	D	002.bmp

FIG.12

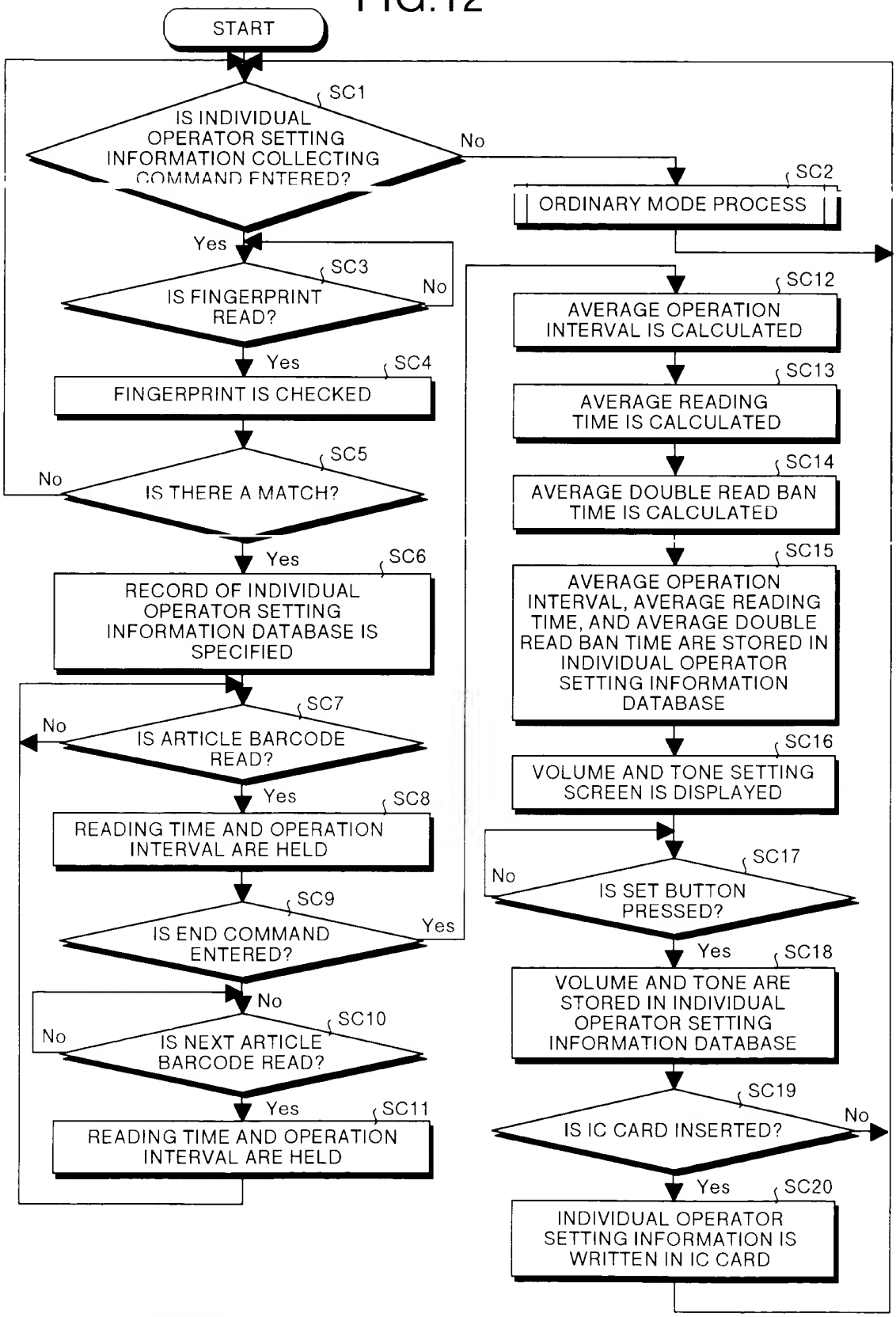
START
SC1
IS INDIVIDUAL OPERATOR SETTING INFORMATION COLLECTING COMMAND ENTERED?
No
SC2
ORDINARY MODE PROCESS
Yes
SC3
IS FINGERPRINT READ?
No
Yes
SC4
FINGERPRINT IS CHECKED
SC5
No
IS THERE A MATCH?
Yes
SC6
RECORD OF INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE IS SPECIFIED
SC7
No
IS ARTICLE BARCODE READ?
Yes
SC8
READING TIME AND OPERATION INTERVAL ARE HELD
SC9
IS END COMMAND ENTERED?
Yes
No
SC10
No
IS NEXT ARTICLE BARCODE READ?
Yes
SC11
READING TIME AND OPERATION INTERVAL ARE HELD
SC12
AVERAGE OPERATION INTERVAL IS CALCULATED
SC13
AVERAGE READING TIME IS CALCULATED
SC14
AVERAGE DOUBLE READ BAN TIME IS CALCULATED
SC15
AVERAGE OPERATION INTERVAL, AVERAGE READING TIME, AND AVERAGE DOUBLE READ BAN TIME ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SC16
VOLUME AND TONE SETTING SCREEN IS DISPLAYED
SC17
No
IS SET BUTTON PRESSED?
Yes
SC18
VOLUME AND TONE ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SC19
IS IC CARD INSERTED?
No
Yes
SC20
INDIVIDUAL OPERATOR SETTING INFORMATION IS WRITTEN IN IC CARD

FIG.13

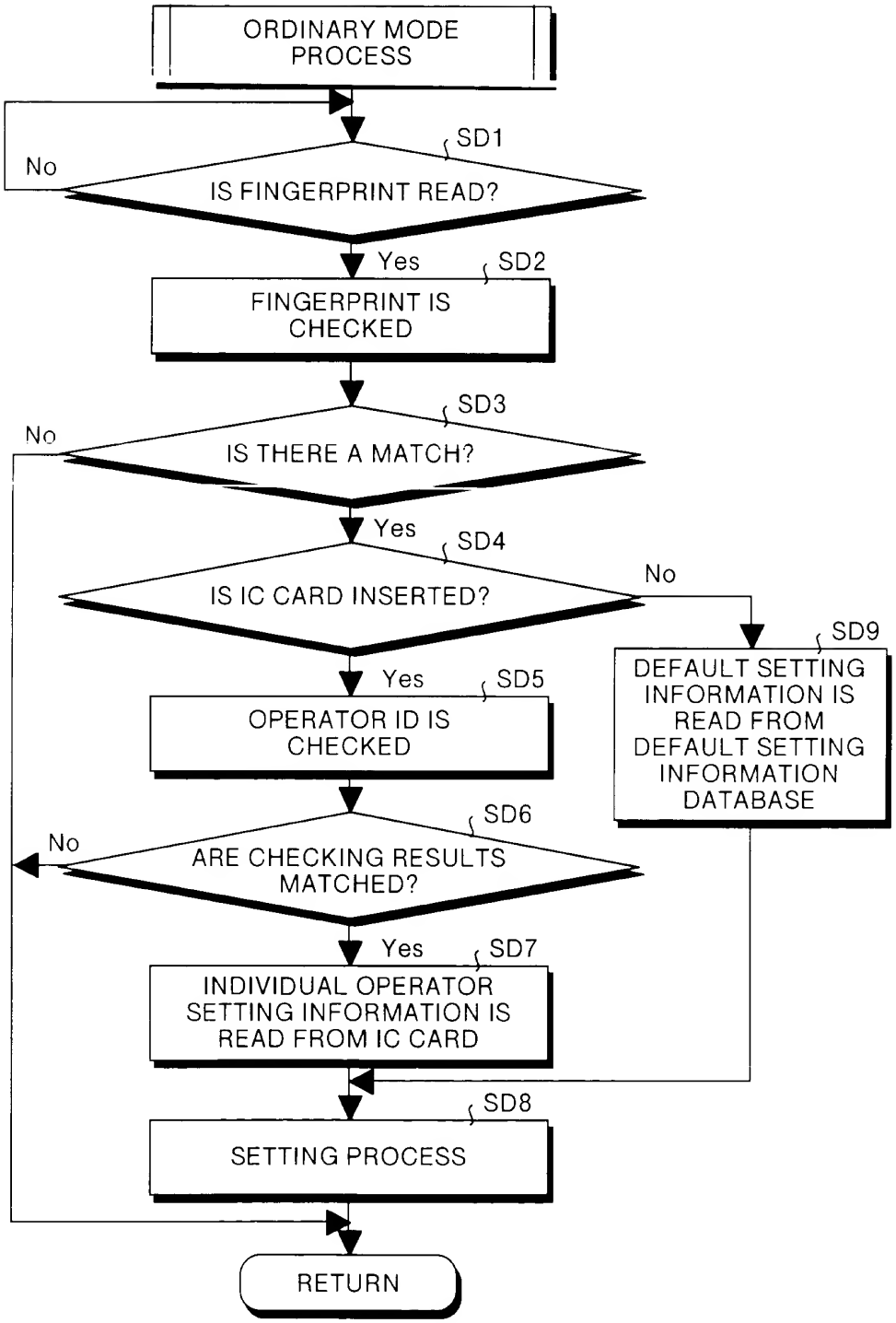
ORDINARY MODE PROCESS
SD1
No
IS FINGERPRINT READ?
Yes
SD2
FINGERPRINT IS CHECKED
SD3
No
IS THERE A MATCH?
Yes
SD4
IS IC CARD INSERTED?
No
SD9
DEFAULT SETTING INFORMATION IS READ FROM DEFAULT SETTING INFORMATION DATABASE
Yes
SD5
OPERATOR ID IS CHECKED
SD6
No
ARE CHECKING RESULTS MATCHED?
Yes
SD7
INDIVIDUAL OPERATOR SETTING INFORMATION IS READ FROM IC CARD
SD8
SETTING PROCESS
RETURN

FIG.14

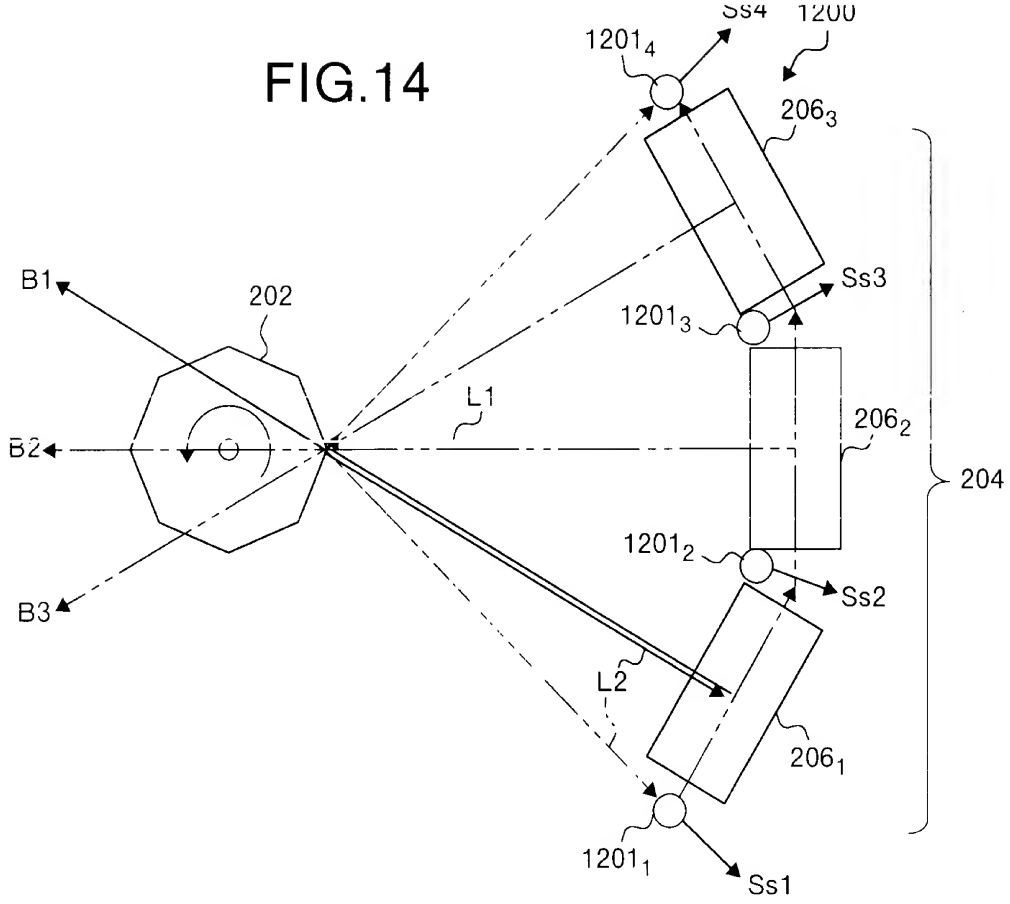
Ss4
1200
1201_4
206_3
B1
202
Ss3
1201_3
L1
206_2
B2
204
1201_2
Ss2
B3
L2
206_1
1201_1
Ss1

FIG.15

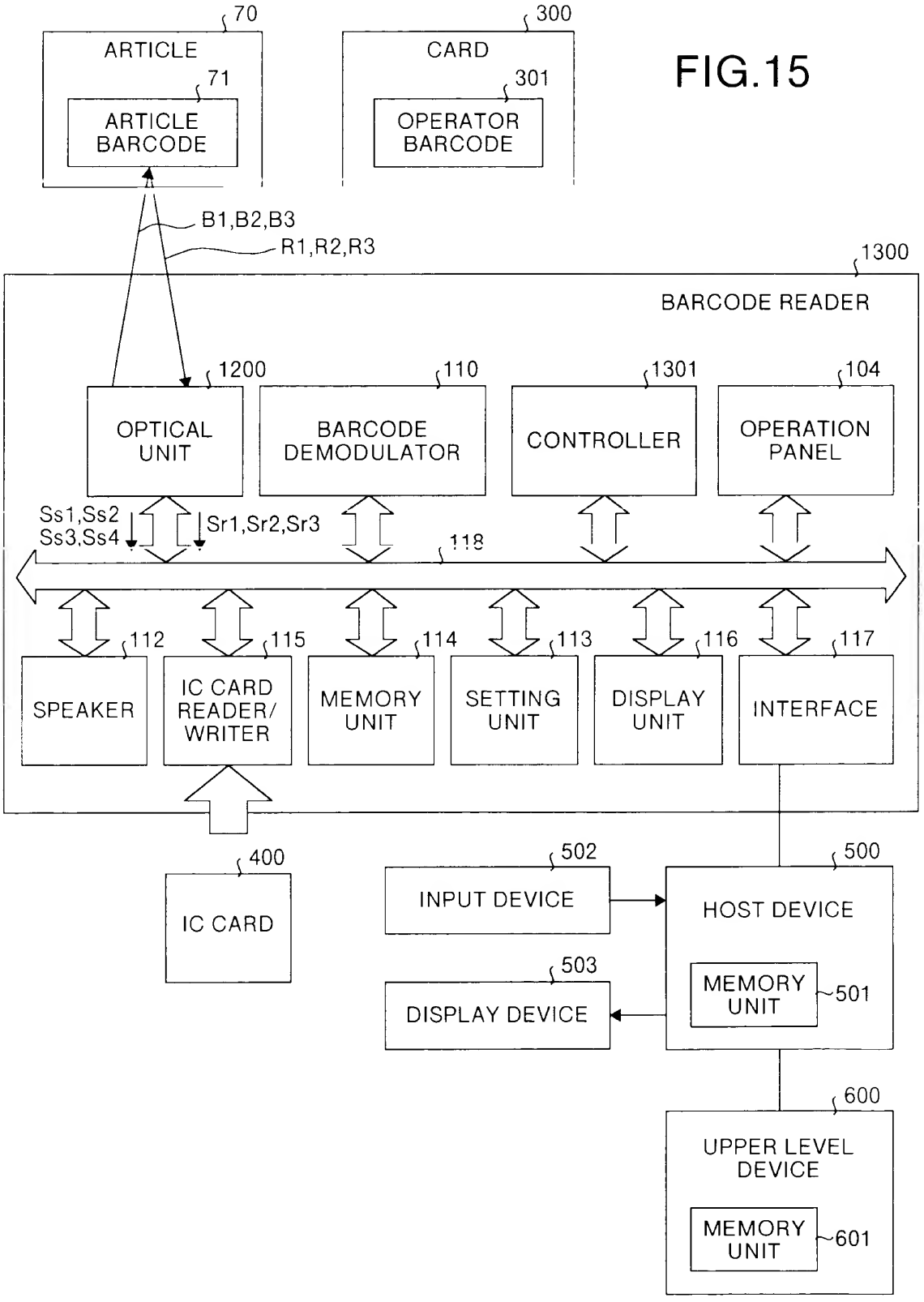
70
ARTICLE
71
ARTICLE BARCODE
300
CARD
301
OPERATOR BARCODE
B1,B2,B3
R1,R2,R3
1300
BARCODE READER
1200
OPTICAL UNIT
110
BARCODE DEMODULATOR
1301
CONTROLLER
104
OPERATION PANEL
Ss1,Ss2
Ss3,Ss4
Sr1,Sr2,Sr3
118
112
SPEAKER
115
IC CARD READER/ WRITER
114
MEMORY UNIT
113
SETTING UNIT
116
DISPLAY UNIT
117
INTERFACE
400
IC CARD
502
INPUT DEVICE
500
HOST DEVICE
503
DISPLAY DEVICE
MEMORY UNIT
501
600
UPPER LEVEL DEVICE
MEMORY UNIT
601

FIG.16

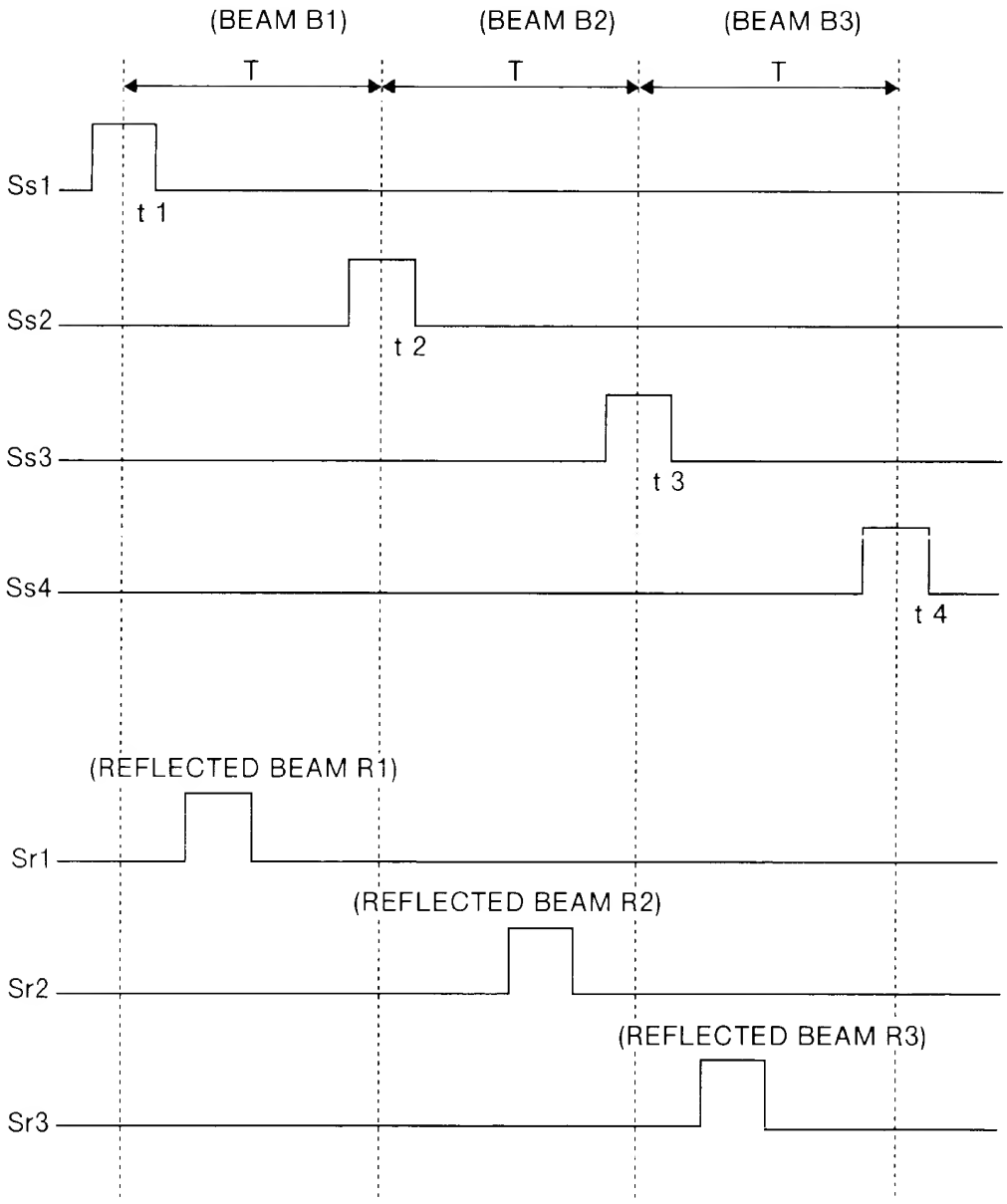
(BEAM B1)
(BEAM B2)
(BEAM B3)
T
T
T
Ss1
t 1
Ss2
t 2
Ss3
t 3
Ss4
t 4
(REFLECTED BEAM R1)
Sr1
(REFLECTED BEAM R2)
Sr2
(REFLECTED BEAM R3)
Sr3

FIG.17

1400

OPERATOR ID	OPERATOR NAME	OPERATION INTERVAL	READING TIME	DOUBLE READ BAN TIME	VOLUME	TONE	FREQUENT BEAM
001	TARO YAMADA	1.23sec	0.6sec	0.63sec	5	A	B1
002	SHINICHI SUZUKI	1.00sec	0.45sec	0.55sec	2	D	B3

FIG.18

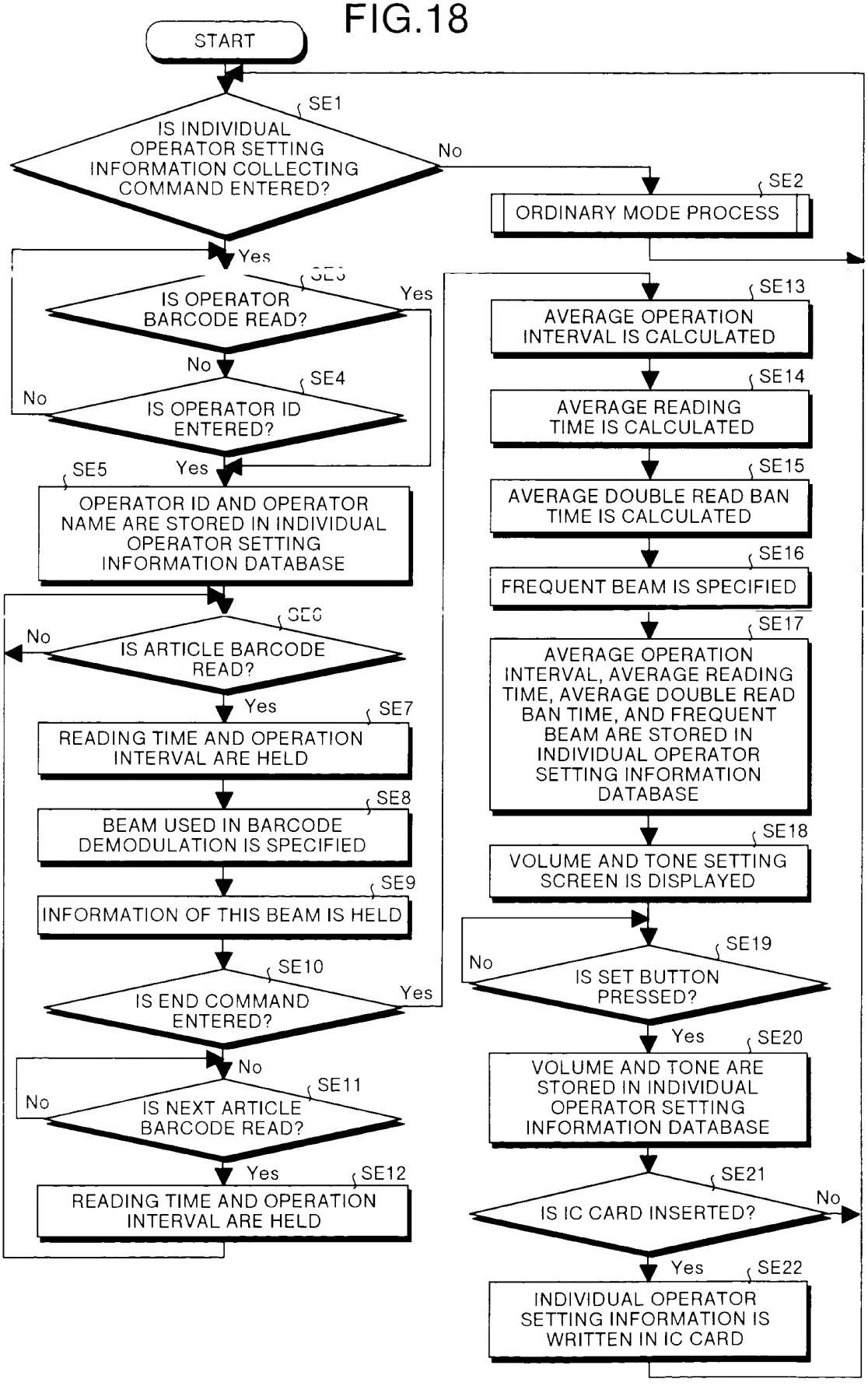
START
SE1
IS INDIVIDUAL OPERATOR SETTING INFORMATION COLLECTING COMMAND ENTERED?
No
SE2
ORDINARY MODE PROCESS
Yes
SE3
IS OPERATOR BARCODE READ?
Yes
No
SE4
IS OPERATOR ID ENTERED?
No
Yes
SE5
OPERATOR ID AND OPERATOR NAME ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SE6
IS ARTICLE BARCODE READ?
No
Yes
SE7
READING TIME AND OPERATION INTERVAL ARE HELD
SE8
BEAM USED IN BARCODE DEMODULATION IS SPECIFIED
SE9
INFORMATION OF THIS BEAM IS HELD
SE10
IS END COMMAND ENTERED?
Yes
No
SE11
IS NEXT ARTICLE BARCODE READ?
No
Yes
SE12
READING TIME AND OPERATION INTERVAL ARE HELD
SE13
AVERAGE OPERATION INTERVAL IS CALCULATED
SE14
AVERAGE READING TIME IS CALCULATED
SE15
AVERAGE DOUBLE READ BAN TIME IS CALCULATED
SE16
FREQUENT BEAM IS SPECIFIED
SE17
AVERAGE OPERATION INTERVAL, AVERAGE READING TIME, AVERAGE DOUBLE READ BAN TIME, AND FREQUENT BEAM ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SE18
VOLUME AND TONE SETTING SCREEN IS DISPLAYED
SE19
IS SET BUTTON PRESSED?
No
Yes
SE20
VOLUME AND TONE ARE STORED IN INDIVIDUAL OPERATOR SETTING INFORMATION DATABASE
SE21
IS IC CARD INSERTED?
No
Yes
SE22
INDIVIDUAL OPERATOR SETTING INFORMATION IS WRITTEN IN IC CARD

FIG.19

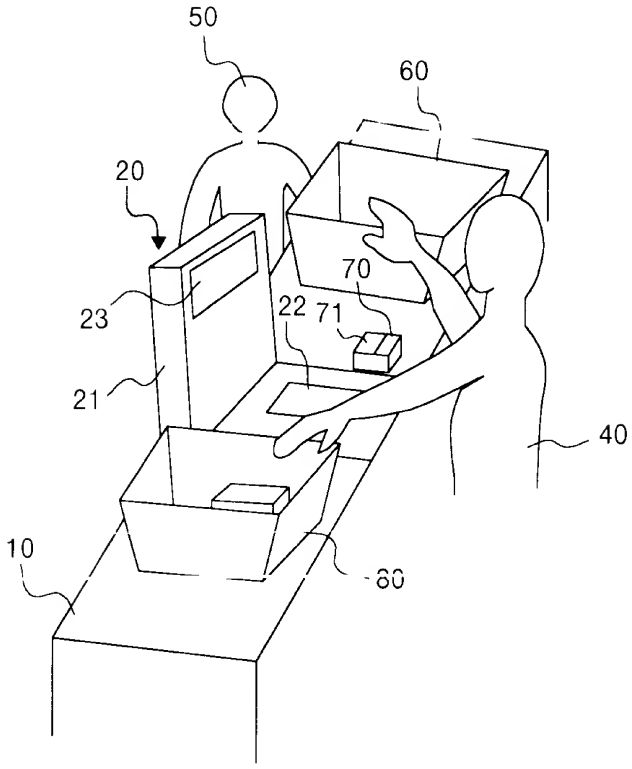

FIG.20

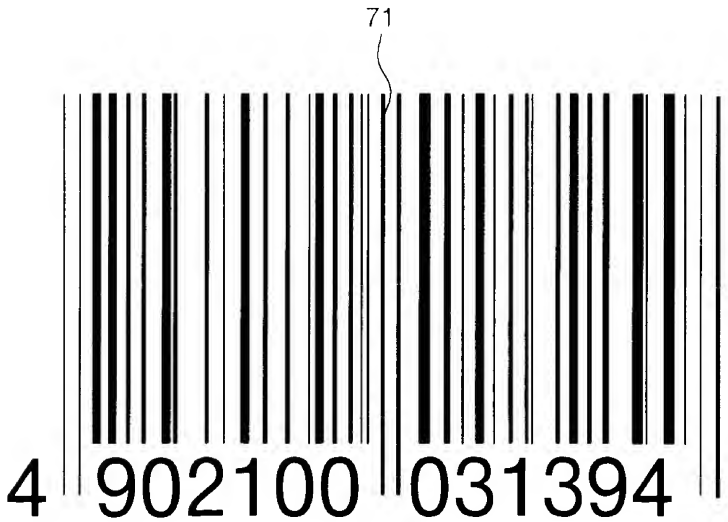

FIG.21

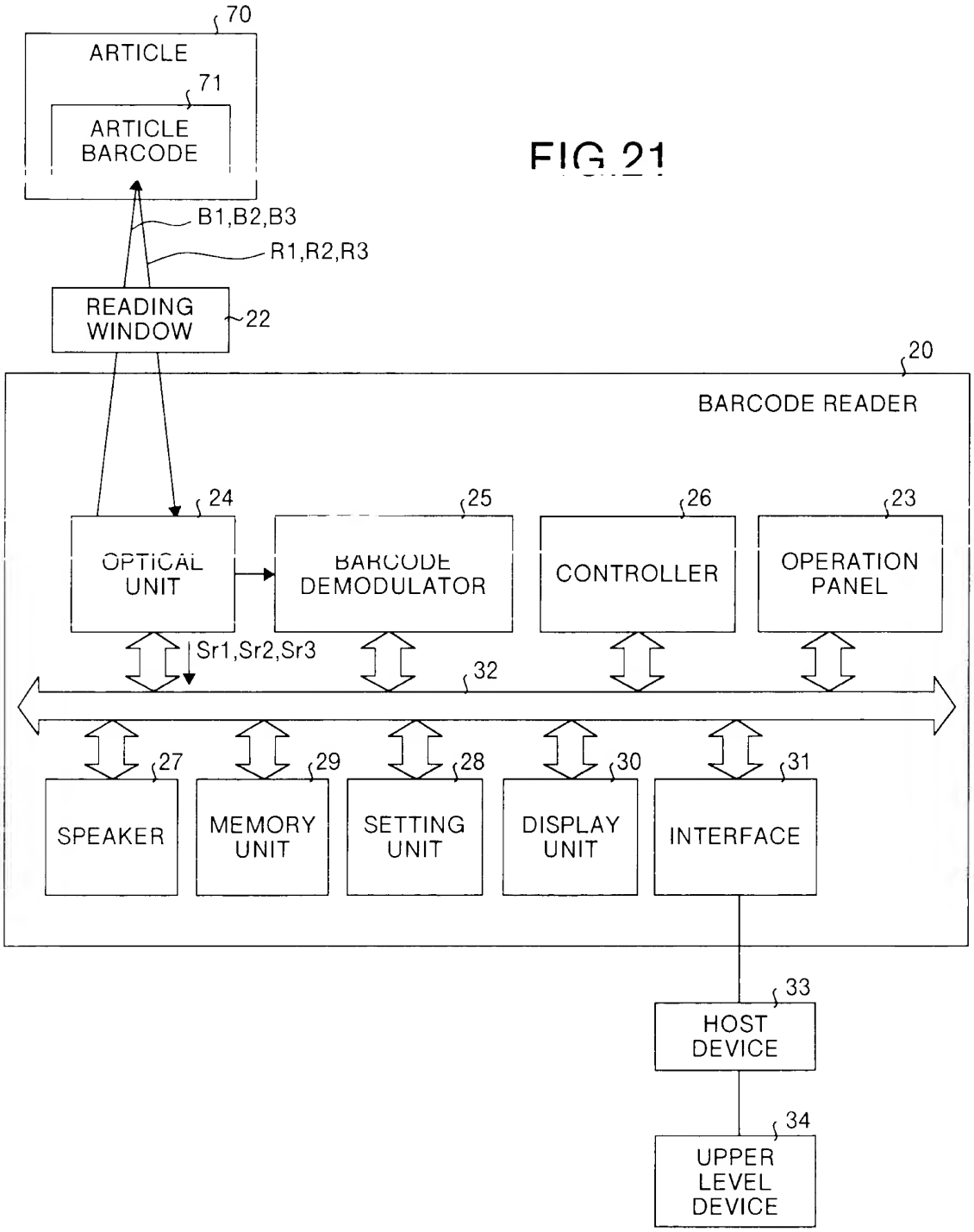
70
ARTICLE
71
ARTICLE BARCODE
B1,B2,B3
R1,R2,R3
READING WINDOW
22
20
BARCODE READER
24
OPTICAL UNIT
25
BARCODE DEMODULATOR
26
CONTROLLER
23
OPERATION PANEL
Sr1,Sr2,Sr3
32
27
SPEAKER
29
MEMORY UNIT
28
SETTING UNIT
30
DISPLAY UNIT
31
INTERFACE
33
HOST DEVICE
34
UPPER LEVEL DEVICE

FIG.22A

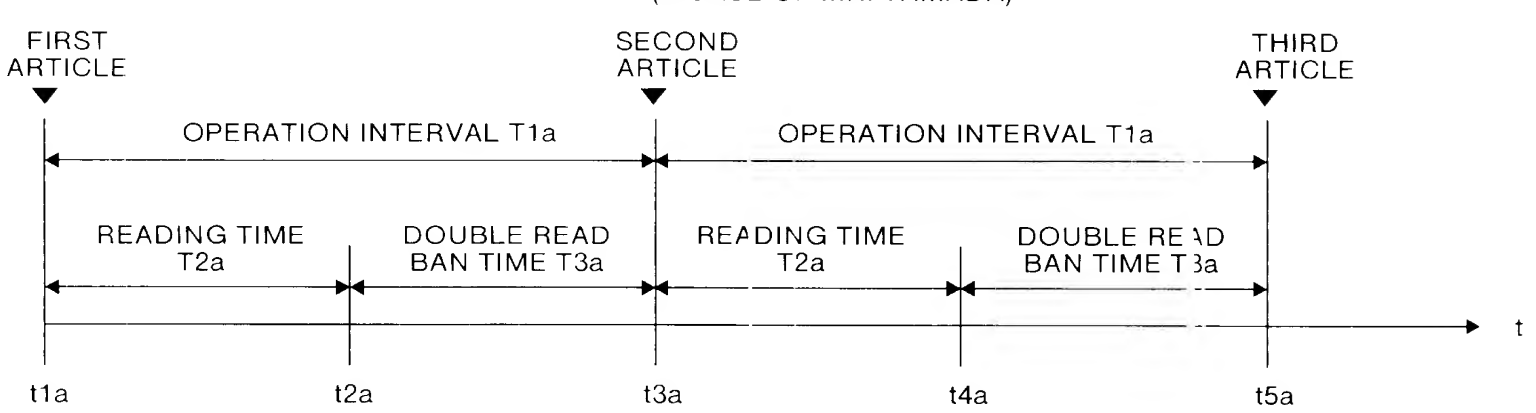
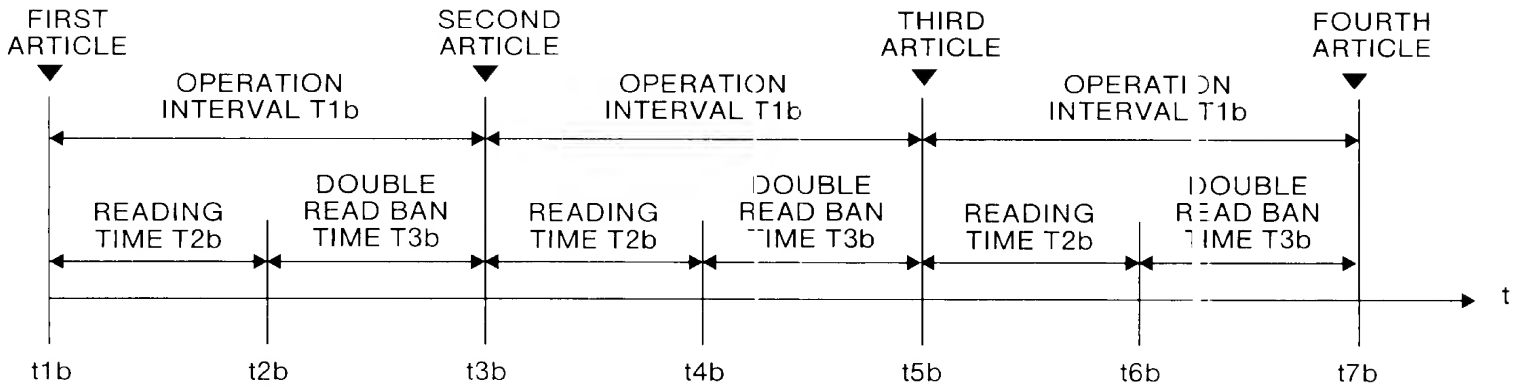
FIG.22B